

Ancient Glass

A GUIDE TO THE YALE COLLECTION



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YALE UNIVERSITY ART GALLERY, NEW HAVEN

R.A. Grossmann (Richard A.)
Ancient Glass

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Foreword

Ancient glass objects and vessels of the Mediterranean region occupy a prominent position within the collection of classical antiquities at the Yale University Art Gallery. Indeed, Yale's holdings of ancient glass, built up over seven decades, rank among the largest and best in the nation. Through pieces in this collection, it is possible to illustrate nearly the full range of technological, stylistic, and functional development in the history of glass from its early development in the Bronze Age well into late antiquity. As comprehensive as it is beautiful, Yale's glass collection appeals to museum visitors and scholars alike.

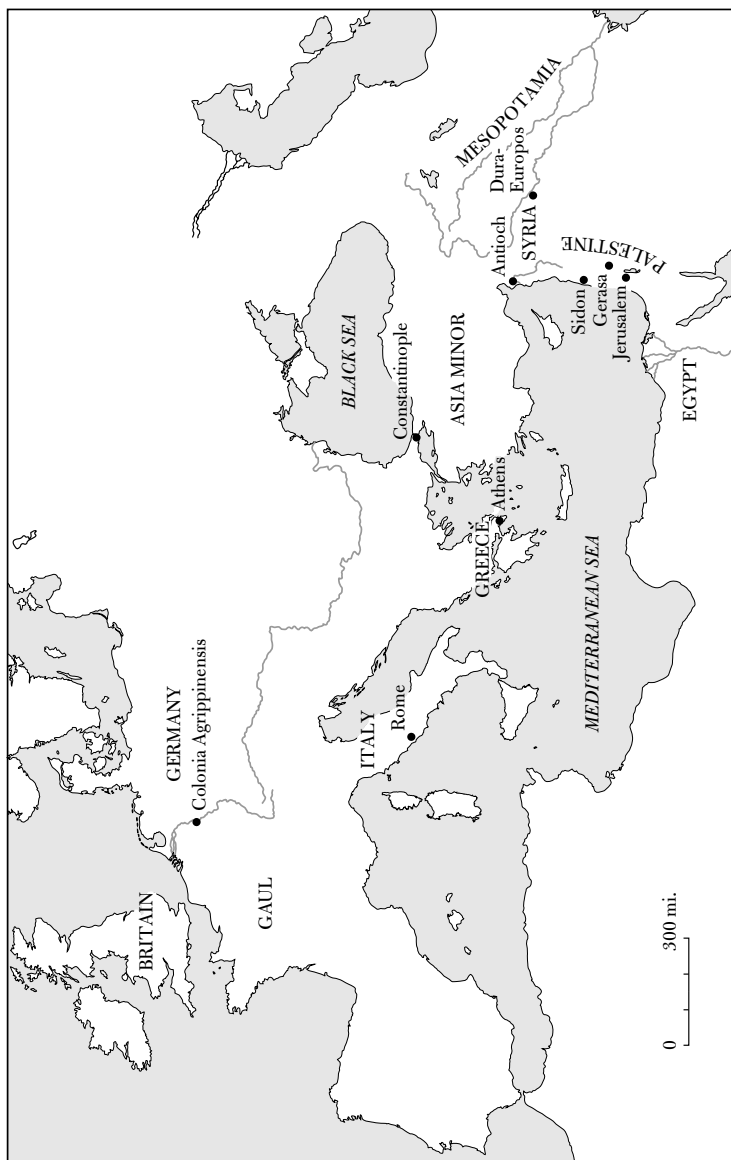
Gifts from alumni and other friends have furnished the majority of ancient glass objects at Yale. The first major gift of glass, the Anna Rosalie Mansfield Collection, comprising nearly 90 pieces, was given in 1930 by the Hon. Burton Mansfield, a longtime resident of New Haven and graduate of Yale College, in memory of his wife. In 1953, Robert Lehman, another graduate of the College, made a notable gift of about 35 pieces of ancient glass. A much larger gift of over 350 glass objects and vessels, the Hobart and Edward Small Moore Memorial Collection, came in 1955, the bequest of Mrs. William H. Moore. The Moore Collection includes many of the Gallery's most important glass objects. Additional gifts continue to complement the existing collection. Furthermore, Yale's participation in excavations at Dura-Europos in Syria between 1928 and 1937 and at Gerasa in Jordan between 1928 and 1934 has benefited the collection by adding glass objects and vessels with known archaeological provenances.

A substantial portion of the donated collections was published in 1980 by Susan B. Matheson, the Molly and Walter Bareiss Curator of Ancient Art, in the catalogue *Ancient Glass in the Yale University Art Gallery*. Nearly 400 glass objects, many of which had not been published previously,

were classified by technique and organized in a roughly chronological framework. The present guide is similarly organized; its purpose, however, is somewhat different. Whereas the earlier catalogue aimed to document the full breadth of the collection, this guide is designed as an introduction to ancient glass through discussion of particular pieces in the Yale collection.

I would like to thank the following people for their assistance in the production of this volume: Susan B. Matheson for all her guidance; Megan Doyon, museum assistant in the Department of Ancient Art, for her constancy in the face of many an irksome request; Ellen Alvord of the Education Department and Professor Judith Barringer of the Classics and History of Art Departments for their constructive criticism; Dr. Christopher Lightfoot of the Metropolitan Museum of Art and Professor David Grose of the University of Massachusetts (Amherst) for their expert advice; Alex Contreras and the rest of the digital team for the outstanding photographic work; and Joyce Ippolito and Sonia L. Shannon, editor and designer, respectively, through whose efforts this book has come into being.

Finally, I would like to dedicate this, my first book, in memory of Leslie Karnovsky, who would have been enormously proud.



Glossary

The following glossary includes technical terms used one or more times in this guide. **Bold lettering** within the text indicates the first appearance of a term included in the glossary.

annealing The process of stabilizing a finished vessel or object by gradual cooling.

blank A piece of glass in a preliminary stage of production which will be worked in successive stages into a finished vessel.

blowing techniques Any of several glassmaking techniques involving the inflation of a gob (see *gob*) of glass using a blowpipe, a hollow tube usually made of metal.

cane A long, slender rod of glass, usually with polychrome patterns, intended to be cut into sections or lengths and used in the manufacture of mosaic vessels or objects (see *mosaic glass*).

casting techniques Any of several glassmaking techniques involving the use of single (open), multipart (closed), or former molds.

core-forming technique The manufacture of vessels or objects by trailing molten glass around a core of clay, mud, sand, and organic material made in the shape of the desired vessel. Threads of colored glass are usually trailed onto the surface for decoration. The exterior surface of the vessel is smoothed by marvering (see *marvering*) while the glass remains hot and pliable. Finally, the core is removed after the vessel has been given ample time to anneal (see *annealing*).

cut decoration The use of a rotating metal or stone wheel covered with an abrasive material to cut bands, facets, inscriptions, ornamental patterns, or figured scenes into the surface of glass vessels or objects.

glass A material made by melting together three primary ingredients: sand (silicon dioxide), which forms the basic structure; an alkali oxide, which lowers the melting temperature; and lime, which stabilizes the mixture and makes it less soluble in water.

gob A mass of molten glass picked up on the end of a blow-pipe. The gob is then blown into a vessel or object (see *blowing techniques*).

marvering The process of rolling a hot glass vessel over a flat surface, usually stone, in order to smooth the surface, to press trailed decoration into the vessel wall (see *trailed decoration*), and, in some cases, to aid in shaping the vessel.

mosaic glass A vessel or object made by fusing sections or lengths of preformed cane (see *cane*).

trailed decoration A strand of glass applied to a vessel or object. Narrow trails of colored glass were applied in zigzag or festoon patterns to core-formed vessels (see *core-forming technique*); trails of varying thickness were frequently added as rims, handles, or base rings and sometimes as surface decoration on blown vessels (see *blowing techniques*).

Glass Jewelry and Decorative Inlays

As early as the third millennium B.C., craftsmen in Mesopotamia discovered how to glaze jewelry and small objects with colored **glass**. The new material joined other vitreous glazes, like faience, as a less expensive substitute for rare and precious stones, such as lapis lazuli. Subsequent developments, especially the use of simple molds, enabled craftsmen to form objects entirely from glass.

In all likelihood, the Egyptians learned glassmaking from their Asiatic neighbors, possibly from captives taken during Egyptian military campaigns in the East under the eighteenth-dynasty pharaoh Thutmosis III (1490–1436 B.C.). The glass industry, once transplanted to Egypt, grew vigorously, fueled in part by the abundance of the raw materials required to manufacture glass. Egyptian workshops not only produced a variety of wares for consumption by the royal court and aristocrats, who could afford such luxuries, but also exported large quantities of raw glass.

The two objects illustrated on this page demonstrate the mastery of glassmaking achieved by Egyptian artisans. The head of a vulture (figure 1), assembled from three separately carved pieces of differently colored opaque glass, may have decorated a piece of furniture or a coffin. The frequent occurrence of the vulture in Egyptian royal iconography, representing the goddess Nekhbet, suggests that this piece may have been a royal commission. The other object, an amulet of blue glass representing a young princess (figure 2), is even more closely linked to the Egyptian royal house. The details of her face, hair, and costume have been carved into the surface of the glass. Although the identity of the princess is not known, the elongation of the skull visible in the portrayal of the child is an artistic convention of the Amarna period and permits the dating of this piece to the second half of the fourteenth century B.C. This object probably functioned as an amulet and was perhaps worn on a necklace.



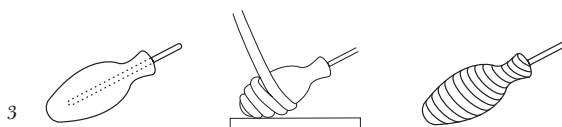
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2

Core-formed Glass

The first glass vessels appeared in the late sixteenth century B.C. Glassmakers in Mesopotamia were once again the innovators, developing the **core-forming technique**, in which hot glass is trailed around a core in the shape of the desired vessel, as illustrated in the diagram below (figure 3), or alternatively, crushed granular glass is applied to the core and heated until it melts and fuses. Core-formed vessels were generally small and used as containers for cosmetics, perfumes, and medicines.



The Egyptians learned this technique in the fifteenth century B.C. through contact with the inhabitants of western Asia. Many early Egyptian core-formed vessels differ only slightly in shape and decoration from their Eastern counterparts. The palm column *kohl* tube (figure 4), however, was distinctly Egyptian. Modeled on a popular architectural form, the palm column, these small vessels were made to hold *kohl*, a black pigment used to darken the edges of the eyes. Vessels such as this one are well documented in excavated tombs, where they served as funerary offerings.

Despite an almost total cessation of glass production during the so-called Dark Ages of Mediterranean civilization between 1200 and 900 B.C., a new generation of craftsmen reclaimed the core-forming technique in the ninth century B.C., and workshops began once again to manufacture small vessels to meet the demands of a rejuvenated market for luxury goods. The period between the sixth and fourth centuries B.C. witnessed an expansion of the glass industry, as core-forming technology spread throughout the Mediterranean. Although the technique remained largely the same, the style of vessels changed over time to satisfy the shifting tastes of patrons which, by the sixth century B.C., were increasingly influenced by Greek pottery. The *amphoriskos* (figure 5), for instance, is a miniature version of the *amphora*, a well-known Greek pottery form used primarily for storage. This small vessel probably once held perfumed oil.

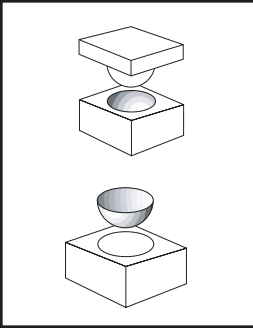


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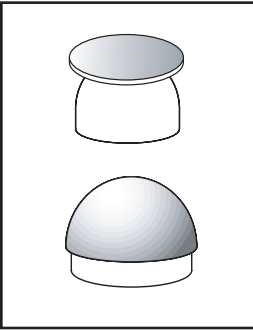


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Cast Glass



6a



6b

Although the core-forming technique was the first process to be used for the manufacture of glass vessels, several **casting techniques** followed shortly thereafter, with early examples from the Near East and Egypt dating to the fifteenth century B.C. Despite the early date of their invention, casting techniques received only limited use until the Hellenistic period, with the explosive expansion of demand for luxury goods centered around the royal courts of the new kingdoms founded by the successors of Alexander the Great. The rise of cast glass to a position of greater prominence beginning in the third century B.C. paralleled the dwindling popularity of the core-forming technique, which was obsolete by the early first century A.D.

Mosaic glass is one type of cast glassware, made by fusing sections or lengths of preformed **cane**, usually featuring colorful patterns, inside a two-part mold in the shape of the desired vessel (figure 6a), or by sagging a disc of fused sections or lengths of cane over a former mold (figure 6b).





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The hemispherical mosaic glass bowl (figure 7) illustrated here was cast in a two-part mold from yellow, spiral-patterned sections of cane set in a colorless ground, with irregularly shaped pieces of blue, green, white, and purple glass interspersed throughout the walls of the vessel. The dark blue and white striped rim contrasts with the brighter colors of the walls.

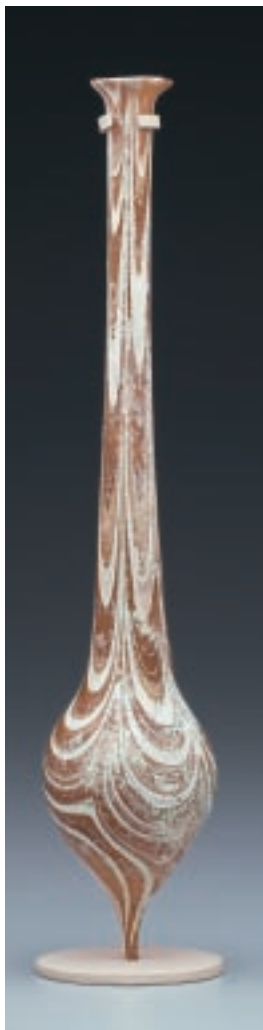
Ribbed bowls were another popular class of cast glass vessel in the late Hellenistic and early Roman periods. Glassmakers manufactured ribbed vessels out of both monochrome and polychrome glass. This deep bowl (figure 8 and frontispiece) is a polychrome example, combining a dark blue matrix with white and yellow-green spiral sections of mosaic cane. This ribbed bowl was likely produced by sagging a disc of glass, already impressed by a tool to form raised ribs, over a former mold (see figure 6b). The flow of the molten glass as it conformed to the shape of the mold accounts for the distension of the colored swirls on the walls of the vessel. Along with the swirling effect of the color on this bowl, the ribbed decoration also enlivens the form.

Blown Glass

The invention of glassblowing in the late first century B.C. stands as the most sweeping innovation in glassmaking technology in the Graeco-Roman era, stimulating a transformation of the ways in which glass was made and used. The new process enabled a skilled craftsman to fashion a simple vessel in a few minutes. With the same basic equipment, a glassmaker could produce a limitless array of vessels in almost any shape and size. No longer a luxury item reserved for the rich alone, blown glassware fell within the means of a much larger segment of the population. The far greater frequency of glass vessels among the objects excavated at archaeological sites dating from the first century A.D. onward suggests that glass had become a standard household material.

The process of blowing glass permits multiple variations, but many of the same **blowing techniques** employed in antiquity are still used today. The process essentially involves the inflation of a **gob** of molten glass by a person blowing air through a blowpipe, a long, hollow rod usually made of metal. After inflating the gob slightly, the blower creates the desired shape, either by swinging the glass, **marvering** it on a flat surface, or manipulating it with some sort of tool. Once the glass has taken on the desired form, the blower inflates the vessel to its full size. The blowpipe is removed, the neck and mouth of the vessel are finished, and handles and a foot may be added. Finally, the completed vessel is left to undergo the slow process of **annealing** in a specially designed part of the oven, where it will remain until it has cooled enough to be moved without breaking.

The three vessels illustrated on these two pages give some indication of the widely different shapes achieved by ancient glassblowers. The elongated neck is the main design feature of the tall, slender flask (figure 9), which would have held perfume. The white festoon pattern set against the amber background further highlights the rise of the form.





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The somewhat squatter, conical body of the small blue bottle (figure 10, left) forms a large well for the fragrance it was designed to contain. The bulbous oil flask, or *aryballos* (figure 10, right), was outfitted with a bronze handle for the convenience of its owner, who would have carried it to the baths.

In addition to representing the many shapes available to glassblowers, these three pieces also exemplify several of the most common types of weathering that affect ancient glass. Weathering occurs over time, as interaction with the burial environment causes changes in the glass. Shifts in temperature and moisture are especially harmful to the condition of glass, causing physical and chemical deterioration of various sorts. The deterioration of the glass has left behind a white, chalky layer covering some of the surface of the slender brown flask. The rainbowlike colors, often called iridescence, coating the surfaces of the bottle and the oil flask are another manifestation of the same problem. To varying degrees, most of the vessels illustrated in the present volume show some form of weathering.

Color-band and Splashed Glass

A period of experimentation followed closely upon the invention of glassblowing. Artisans quickly discovered that manipulation of the partially inflated gob of glass during the blowing process could produce a range of striking effects. Color-band and splashed decoration were two such innovations, based on similar principles. Color-band glass receives its name due to the bands of color that give the surface of the vessel a marbled appearance, similar to the patterns of some mosaic glass. Unlike mosaic glass, which is constructed out of sections of mosaic cane and fused in a two-part mold, color-band glass is made by applying a thread, usually of white glass, to the molten surface of a partially inflated gob during the blowing process. The thread extends and distorts as the gob is blown into a finished vessel. The application of white and green glass threads resulted in the swirling pattern on the surface of this miniature brown bottle (figure 11). Glass vessels with color-band decoration were frequently used as perfume containers.

Splashed decoration utilizes a related technique to produce a different result. By either sprinkling small fragments of multicolored glass on the surface of the gob or by marvering them in, the glassblower could create a bold and colorful style of decoration. When the vessel was blown to its full size, the drops of embedded glass stretched and embellished the exterior surface with vibrant splashes of color. Splashes of opaque yellow, red, and white adorn this dark blue drinking cup, also called a *skyphos* or *kantharos* (figure 12). Because the colored glass fragments are only embedded in the exterior surface of the vessel, the interior surface remains monochromatic. An opaque white band surrounds the rim of the cup. Judging by surviving examples, splashed decoration was especially popular for small glass bottles and drinking cups in the first century A.D. Surprisingly, this type of decoration disappears altogether by the end of that century.





Mold-blown Glass

Mold-blown glass, which appeared in the early first century A.D., is essentially the product of a marriage of blowing and casting techniques. Rather than swinging, marvering, or tooling the molten glass into the desired form, the glass-blower inflates the gob and then closes a multipart mold around it. The mold both creates the shape of the vessel and imparts its impression in relief upon the glass. Like earlier casting techniques, mold-blowing furnished glassmakers with a broad range of formal and decorative possibilities. Mold-blowing surpassed earlier techniques, however, in terms of efficiency, potential for intricate detail, and the overall quality of the finished product. Mold-blown glass with relief decoration became an especially popular material for small cosmetic containers, securing for glass an ever greater portion of the market for such goods.

This lidded box, or *pyxis* (figure 13), is related to a series of opaque white cosmetic vessels dating to the first century A.D. A central band of eight panels encircles the body of the *pyxis*. Four plant and geometric motifs, each repeated in two





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of the eight panels, decorate the walls of the vessel, while three concentric circles surrounded by a band of palmettes adorn the lid. Similar palmette patterns also occur on stone and metal objects from this period.

Another form popular in the mid- to late first century A.D. and well represented among the finds at archaeological sites in Italy and elsewhere in the Roman world is the so-called lotus beaker. The name of this type of vessel derives from the relief decoration of protruding knobs, commonly identified as a lotus bud motif. Five rows of knobs protrude from the body of this fairly small example, with raised circular dots appearing in the spaces between the knobs (figure 14). The size of the vessel, the absence of relief decoration toward the top of the body, and the slightly splayed rim may indicate an intended function as a drinking vessel.

Cut Glass



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A class of specialist artisans possessing the skills required to cut and engrave glass sometimes cooperated with glass-blowers to fashion and decorate vessels. A talented glass-cutter, using many of the same techniques employed by gemcutters on precious stones, could produce a broad range of decorative motifs from simple geometric patterns to inscriptions and elaborate figural scenes. Glass with **cut decoration** attained great popularity between the first and fourth centuries A.D.

This beaker (figure 15) exemplifies a type of cut decoration, known as facet-cutting, popular in the first and second centuries A.D. The manufacture of this vessel began in the glass-blower's workshop, where a gob was blown into the general shape of a beaker. Rather than finishing the form of the vessel as usual, the glass was allowed to anneal, creating a thick, undecorated **blank**. Once cool, the blank was passed on to the cutter, who refined the shape of the vessel by cutting the glass with an abrasive stone while it turned on a lathe, articulating the rim and the foot, as well as forming the three thin raised horizontal bands running around the body. The cutter next used a rotating wheel covered with abrasive material to cut two rows of oval-shaped facets into the surface of the glass, creating a honeycomb pattern encircling the beaker between two of the raised bands. Finally, the vessel was polished using a rotating wheel covered with an even finer abrasive.

A small bottle (figure 16) dating to the fourth or fifth century A.D. features a cut design incorporating plant and animal motifs. Palm branches form a frieze of six circular medallions. An animal head, probably representing a dog, occupies the center of each medallion. The glasscutter formed the medallions by lightly abrading the surface of the glass, creating solid areas in the shape of palm branches; he incised the lines of the animal heads more deeply in order to differentiate them clearly from the foliage.

Unlike most of the pieces illustrated on the previous pages, neither of these cut vessels was formed from brightly colored glass. The pale green glass of the bottle reflects the natural color of the material. The nearly colorless glass of the facet-cut beaker was achieved by the addition of a chemical decolorant, probably manganese or antimony. The frequent union of cut decoration and pale green or colorless glass is best explained by the desire to imitate more expensive vessels carved from rock crystal.



Painted and Gilded Glass



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On occasion, painters were called upon to draft designs on glass vessels. Documented examples include geometric designs, floral and animal motifs, and mythological scenes. Little painted glass has survived from antiquity, due in large part to the impermanence of the pigments especially when buried in the ground for long periods of time. It is, therefore, difficult to gauge the prevalence of painted glass in ancient times. Small vessels with simple painted decoration are well attested by finds throughout the Roman Empire, and it seems likely that painted glass was not uncommon. On the other hand, enlisting the services of an expert painter to apply a more elaborate design to a glass vessel may have been a costly proposition, and such an expensive item would have been better suited for display than for use.

The opulence of a painted glass vase found at Dura-Europos in Syria remains conspicuous despite its fragmentary state. A surviving fragment (figure 17) preserves about half of a female head, crowned and veiled. An inscription above the head identifies the head as belonging to Thetis (ΘΕΤΙΣ), a sea-nymph and the mother of the Greek hero Achilles. The painter indicated the hair, eyes, and the contour lines of the veil and crown in black enamel, which stands out boldly against the opaque white surface of the glass. Small red and green rays projecting from behind the crown may indicate leaves and flowers. Gilding accents Thetis' face, crown, and veil. Although the limited survival of the painted figure impedes interpretation of the piece, scholars have noted a similarity between this vessel and a mosaic depicting Thetis found at Antioch (modern Antakya, Turkey). The combination of gilding and opaque white glass also connects the fragments from Dura-Europos with a complete vessel in the collection of the Corning Museum of Glass known as the Daphne Ewer.

The use of gold in the decoration of glass underwent a revival in the late Roman period, after a period of relative

disinterest. Workshops in Rome, Egypt, Syria, and Germany were especially active in resuming the practice of gilding glass vessels and objects. The technique, which originated in the Hellenistic period, if not earlier, involved the application of bands of gold leaf to the surface of a vessel and the creation of patterns by incising and scraping away areas of the gold. The brilliance of the gold leaf contrasts boldly with the deep purple glass of a gilded beaker in the Yale collection (figure 18), probably a work of the third or fourth century A.D. Unlike most Hellenistic and many Roman examples of gilded glass, the gold leaf on this beaker does not rest between layers of glass but simply sits on the outer surface of the vessel. This lack of a protective barrier accounts in large part for the loss of some of the gold leaf, especially on the lower portion of the beaker. The decoration of the vessel is organized in three bands. The bottom band is quite narrow and represents a wreath of leaves. The middle band is several times as wide and features an ornate pattern of purple rosettes, each surrounded by a gold and purple band, arranged in three rows and set against a gold field. Incised arrows radiate from some of the rosettes. The upper band of gold has been worked into a Greek inscription, which reads “ΤΙΕ ΖΗΧΗ,” meaning “Drink that you may live.” Although this exhortation was used for centuries without any religious connotations, by the fourth century it may in some cases have taken on a eucharistic meaning, referring to the redemptive potential of the blood of Christ. The generic decoration of the Yale beaker, however, favors an interpretation of the inscription as a general wish of good cheer rather than as an encoded religious message.



Glass with Trailed Decoration



19

The use of **trailed decoration** on glass vessels extends back to the earliest use of the core-forming technique. Glassmakers frequently applied trails of yellow and white glass, usually in zigzag or festoon patterns, to the bodies of core-formed vessels. The trails were usually pressed into the surface of the vessel by marvering. Following the decline of core-formed glass and the discovery of blown glass, the use of trailed decoration was overshadowed by molded relief and cut decoration. Beginning in the second century A.D., however, and lasting for several hundred years thereafter, trailed decoration regained a position of prominence in the decorative repertoires of glassmakers.

Snake thread decoration refers to the application of trails of glass in serpentine designs on the surface of a vessel. Sometimes glassmakers executed the snake threads in glass of a different color than the surface on which they were applied. In the case of this second-century bottle (figure 19), however, pale green glass was used for both the trailed decoration and the vessel itself. Instead of color, ridges pressed into the snake threads aid in distinguishing the trailed decoration from the plain surface of the bottle.

The relationship of trailed decoration to the basic shape of the vessel changed dramatically in the fourth and fifth centuries A.D. Whereas the snake thread decoration of the previous example complements the contours of the bottle, the trailed decoration of later vessels often overshadows and obscures the basic form. The sixteen trailed handles attached to this jar (figure 20 and cover) from shoulder to rim create a cagelike structure encircling the neck. The intricate triple-looped handle of this four-compartment cosmetic tube (figure 21) is nearly as long as the body. This type of vessel, which first appeared in the fourth century A.D., was used primarily as a container for powdered galena, a mineral used as eye makeup. Because the openings at the top of these tubes were generally very small, a small metal or



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bone spoon was used to extract the contents. The small size of the tube's openings and the barrier created by the handle would have made the insertion of a spoon to extract the contents exceedingly difficult. Evidently, however, the functional limitations of these vessels did not preclude their popularity, as glass workshops in the eastern Mediterranean continued to manufacture them into the sixth century A.D.



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Trade and Marketing

Several factors contributed to the rapid expansion of the glass industry in the first century A.D. One was the invention of blown glass, which made the production of glass vessels more efficient and less expensive. Another was the favorable environment for trade created by the unification of much of the territory surrounding the Mediterranean Sea under a single government, centered in Rome. While glass workshops in the eastern part of the Roman Empire took advantage of this situation by exporting their products to Italy and the western provinces, new workshops were set up in Italy and the West, some by immigrant glassmakers trained in the East. Increased competition forced glass manufacturers to operate with greater efficiency and ingenuity and provided an impetus to consider alternatives to the production of tableware and cosmetic items. In search of new clientele, some workshops opted to employ glassmaking technology in the service of commerce and industry.



22



22a

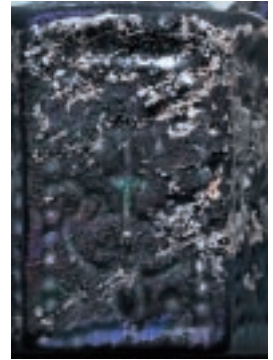
The demand of merchants for containers in which to transport perishable goods, such as oil and wine, was constant and large. Square, mold-blown glass bottles, like this one (figure 22), which packed easily, became a popular option for moving merchandise across the Roman Empire. Thick walls compensated for the natural fragility of glass. Glass bottles offered certain advantages, including easy visibility through the transparent walls and negligible effect on the taste or smell of the contents. In addition, the use of the same mold in the production of a group of glass vessels made possible the standardization of the internal volume of all containers in the group, permitting a merchant to keep precise track of the quantities of the goods in his possession. Yet another benefit of mold-blown glass containers was the ease of incorporating designs that could serve as identifiable trademarks, perhaps of the glass workshops that made them but more probably of the merchants who used



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them. The bases of square bottles frequently feature geometric patterns in relief, like the rosette within a circle (figure 22a) on the base of the bottle on the opposite page.

A workshop active in Jerusalem in the early Byzantine period (5th–7th century A.D.) provides another example of how glassmakers might target a specific clientele. This workshop seems to have made a business of supplying pilgrims to the Holy Land with souvenirs in the form of glass containers for holy oil. A series of hexagonal jugs and jars, both with and without handles, bear Christian (figure 23, left) and Jewish (figure 23, center) religious symbols along with geometric designs (figure 23, right). Although these vessels were manufactured using the mold-blowing technique, their decoration is unusual in that the patterns are impressed in the surface rather than raised in relief. The crosses depicted on three sides of the long-necked jug (figure 23a) are unmistakably Christian motifs. The presence of a *menorah*, a form of candelabrum used in Jewish ceremonies, on one side of the squat jar (figure 23b) indicates that the intended buyer was a Jewish pilgrim. The same workshop was likely responsible for manufacturing vessels without any recognizably religious imagery, linked to the Jewish and Christian jugs and jars by their shape, the unusual impressed style of decoration, and the motifs of lozenges and stylized trees that also appear on the religious vessels.



23a



23b

Identifying Glass Workshops

Attributing individual vessels to particular workshops and regional groups has been the goal of much modern scholarship on ancient glass. On occasion, epigraphic evidence, usually a signature, associates an object with an individual glassmaker's name. Of the approximately 130 ancient glassblowers whose names are known today, Ennion is certainly the most famous. Ennion's signature survives on more than twenty mold-blown vessels, including the one illustrated here (figure 24). An inscription reading "ENNION EΠΟΙΕΙ" ("Ennion made it") occupies a rectangular panel below the rim of the jar. Unlike some other glassblower's signatures, Ennion's offers no indication of the geographic location of his workshop nor of the period during which he worked. Archaeological evidence indicates that Ennion was active in the early to mid-first century A.D. Determining the location of his workshop, however, is somewhat more problematic. His name is of eastern origin, and many scholars believe that Ennion worked in or near Sidon, a city on the eastern coast of the Mediterranean Sea in northern Palestine, often credited as the likely birthplace of the mold-blowing technique. Alternatively, others have attempted to situate his workshop in Italy, since most of the drinking cups signed by Ennion have been found there. It is also plausible that Ennion began his career in the East but later relocated his workshop to Italy. To date, no resolution has been reached on this subject. It is clear, in any case, that Ennion's workshop produced some of the finest examples of Roman mold-blown glassware and that his products were traded extensively throughout the Roman Empire. Scores of vessels are related in style to signed examples but lack the signature of the master glassblower, suggesting that his highly refined workmanship was regularly imitated by other craftsmen.

Although a signature such as Ennion's makes the attribution of a glass vessel to a known workshop a fairly straightforward



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ward endeavor, scholars often must look to more subtle properties of construction and design in order to recognize the repeated occurrence of distinctive traits among related vessels. If scholars are able to date a group of related pieces to the same period and, perhaps, to the same region, they may posit a single workshop responsible for the group and assign the workshop a descriptive title. The “Workshop of the Floating Handles” is so named on account of the peculiar way in which the handle adheres to the body of the vessel at only one point, rather than the usual two. This unusual effect is achieved by attaching one end of a trail of glass to the vessel just below the rim and dragging it down toward the body—the reverse of the standard procedure for fashioning a handle. The lower end is left unattached to the body, creating an illusion of a “floating handle,” easily visible on this small jug (figure 25) with molded decoration evocative of wickerwork. This type of handle occurs on a variety of different types of mold-blown vessels dating to the first century A.D., including another piece discussed in the coming pages (see figure 31).



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Glass in the Western Roman Empire

By the late first century A.D., glass workshops were well established not only in Italy, but also in the western provinces of Gaul and Germany. One of the major centers of glass production in the West was Colonia Agrippinensis (modern Cologne, Germany) on the lower Rhine. The city began its life in the late first century B.C. as a staging ground for Roman military campaigns in Germany. The emperor Claudius established an official Roman colony there in A.D. 50 and named it in honor of his wife, Agrippina. Colonia Agrippinensis became one of the most important cities of the western Roman Empire and an industrial hub of the region. The city was especially known for its fine glassware, which was exported not only to neighboring provinces but also to Rome and the East.

The similarities between glass vessels produced in eastern and western workshops suggest some sort of contact between glassmakers across the Roman Empire. Craftsmen migrating from the East to the West would have transported new techniques and styles with them. Other sources of com-





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munication were less direct. Long-distance trade in glassware also introduced fresh ideas and enabled glassmakers in more remote areas to remain apprised of the fashions current elsewhere. Scholars have also proposed an active trade of molds between workshops in different regions of the empire, which would have permitted the production of nearly identical objects in far distant places.

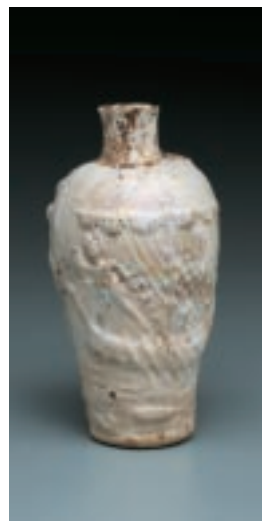
Nevertheless, western glassmakers did not merely follow the lead of their eastern colleagues, but rather they contributed their own variations and innovations. Although bell-shaped cups and beakers were manufactured throughout the Roman Empire, the shape of this particular cup (figure 26) is unique to vessels produced in the second century A.D. in and around Colonia Agrippinensis. Horizontal cut bands at the base of the rim and on the body stand out against the nearly colorless glass of the cup. Likewise, the chain handle locates the manufacture of this jug (figure 27) in the western provinces. The trailed spiral decoration suggests a date in the third century A.D.



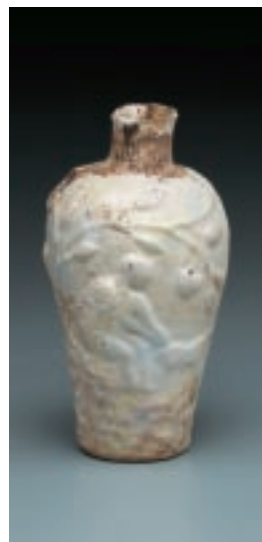
Mythological Themes on Roman Glass

Dionysos (Bacchus to the Romans), the god of wine, was the most frequently represented deity in classical art. Imagery related to his cult was especially fitting decoration for vessels used at drinking and dinner parties. Grapevines run around the top and bottom of this large beaker (figure 28), while molded representations of Dionysos, his goat-legged comrade Pan, and two other dancing revelers fill the space in between. Dionysos, clothed only from the waist down, stands, holding a staff in his left hand as he pours wine into the mouth of a small panther from a jug in his right hand. Panthers and other exotic animals are regular features in Dionysiac scenes.

Although Dionysiac imagery and other lively mythological motifs were commonly employed in decorating glass vessels, depictions of specific mythological tales are rare. The molded relief decoration of this opaque white bottle presents such a rarity. On one side of the bottle (figure 29a), a ship, powered by oars while its sails are furled, glides through the sea. A man, dressed in full armor and holding a sword and shield, stands at the bow of the ship and leans out over the water, bracing himself with his legs. A molded inscription, barely visible behind the figure on this and several other identically decorated vessels, identifies the figure as Ajax, also called Aias, a Greek hero of enormous stature and legendary valor who plays a prominent role in the Trojan War as recounted in Homer's *Iliad* and other ancient sources. Here Ajax is shown just before the war has begun, gallantly leading his men toward Troy. Ajax is again the central figure of the scene on the other side (figure 29b). Unlike the previous scene, this one represents Ajax after the war's end, and the mood is tragic rather than triumphant. He sits beneath a tree, reaching out to grab a bull. Cursed by the goddess Athena for his violation of her sanctuary, Ajax went insane and attacked a herd of cattle before committing suicide. By juxtaposing scenes of glory and disaster in its decoration, this bottle served as a reminder of the mixed fortunes of even the greatest men.



29a



29b

Head Flasks



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The use of the human head as a model for utilitarian objects extends back at least to the archaic period, when head-shaped vessels were produced in both terra-cotta and bronze. These vessels probably served as prototypes for the glass head flasks popular in the Roman period. Between the first and the fourth centuries A.D., glassmakers manufactured head-shaped vessels in a variety of formats. Single heads were common in the first half of the first century A.D. Flasks combining two or more heads became standard by the second century A.D. Although it is often difficult to determine the specific identities of the heads represented by these vessels, common subjects included divinities, mythological characters, and anonymous men and women with recognizable ethnic features. The knotted snakes beneath the chin of the faces on both sides of this double-headed (janiform) flask (figure 30) point to Medusa, a mythical monster with serpents for hair, as the most likely subject, despite her incongruously attractive face.

Identifying the subject of a first-century head flask in the Yale collection, known also from nine nearly identical examples in published collections around the world, has proven more contentious. The flask (figure 31), in the shape of a single human head, wears a hairstyle with a *nodus* (knot) of hair built up in the front and a row of curls feeding into a bun at the nape of the neck. Some scholars have argued that these vessels portray Livia, the emperor Augustus' wife, who wore the "*nodus coiffure*" as her signature hairstyle in many sculpted portraits. The modeling of a glass head flask on a specific historical personage, however, is otherwise unknown, and several scholars have rejected the Livia attribution, noting that the hairstyle of the empress was widely imitated in sculptural representations of non-imperial women and goddesses. Those who are skeptical of identifying the subject of the head flask as Livia tend to favor a more cautious identification as a generic woman or goddess. In either case, the distinctive "floating" handle, attached to the vessel only at its upper end, points to the Workshop of the Floating Handles as the manufacturer (see page 25).



Glass and Good Fortune



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In the mid- to late first century A.D., eastern Mediterranean workshops manufactured several types of mold-blown drinking vessels with good-wish inscriptions in Greek. The inscription on this beaker (figure 32) sits in the center of the body, bordered on top by a pair of palm fronds and two narrow horizontal bands and on the bottom by three horizontal bands with a herringbone pattern below. The inscription reads “ΚΑΤΑΧΑΙΠΕ ΚΑΙ ΕΥΦΡΑΙΝΟΥ,” meaning “Rejoice and be merry.” Other related vessels exhort their users to “Take the victory.”

The inscription on a drinking cup might offer a wish of good fortune; Tyche was responsible for fulfilling that wish. τυχη (*tyche*) is the Greek word meaning “fortune,” “fate,” or “chance.” The Hellenistic Greeks revered Tyche, the personification of these concepts, as a goddess, as did the Romans, who called her by the name Fortuna. It was generally believed that ordinary people, kings, and even cities had their own distinct fortunes or fates, and by extension, their own Tyches. This preoccupation with fortune was given visual form in art, as individuals and cities commissioned representations of their respective Tyches. The most famous of these was a colossal statue by the early Hellenistic sculptor Eutychides of the Tyche of the Syrian city Antioch. Eutychides’ statue, sculpted around 296 B.C., no longer survives, but its format is known from many surviving ancient statues, such as this small Roman version in bronze (figure 33, left), which replicate the basic composition of the original. Tyche sits on a pile of rocks with one leg crossed over the other. She supports herself with her left arm, extended at her side, while resting her right arm on her knee. The walls of the city form a crown that sits atop her head. In the original statue, a personification of the Orontes, the river running past the city of Antioch, swam at her feet. Some replicas preserve the figure of Orontes, although others, including this one, do not.

The enormous popularity of the Tyche of Antioch continued well into the Roman period. Other cities modified the basic format of Eutyichides' statue and created images of their own Tyches. In addition to sculpted versions in marble and bronze, variations on the image of the goddess of fortune appeared on coins and in jewelry, as well as in glass. The form of this flask (figure 33, right), dating to the second or third century A.D., shares several of the salient features of the Tyche of Antioch, including the cross-legged pose and the personification of the river at her feet, although a vertical neck with a rounded rim has replaced the mural crown. The small figure of Eros on the side of the goddess' seat may be a local symbol indicating that the flask represents the Tyche of a city other than Antioch.



Glass Vessels in the Shapes of Fruits and Animals

Mold-blowing techniques enabled glassblowers to create glass vessels in imitation of various types of objects. Beginning in the first century A.D., artisans working along the Syro-Palestinian coast began to look to food for inspiration. The earliest examples are small perfume containers shaped like dates, a fruit cultivated widely in the Mediterranean for use as a foodstuff, a sweetening agent in food and wine, a perfume, and even as a medicine. The brown color and wrinkled texture of most of these small vessels (figure 34, left and center) effectively recall the appearance of the fruit, especially when dried, although date flasks were sometimes blown in blue glass (figure 34, right) instead. Subtle variations in the cross-sections and profiles of vessels within this group have occasioned suggestions that actual pieces of fruit were used in the production of molds, although this claim is not yet supported by archaeological evidence.

Other fruit-shaped vessels appeared in the following centuries. This flask in the shape of a bunch of grapes (figure 35), dating to the late first to third century A.D., ranks among the more naturalistic of its type, with careful attention devoted to the accurate rendering of the three-lobed form of the bunch and to the articulation of individual grapes. The brown glass of this flask is unusual; shades of green and purple, which more nearly resemble the colors of real grapes, are the norm. The two handles extending from the





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shoulder of the flask to the middle of the neck are noteworthy additions to this vessel and may indicate the involvement of a workshop in the western part of the Roman Empire.

Ancient glass workshops produced vessels in the shapes of animals, as well. Unlike the mold-blown vessels in the shapes of fruits discussed above, the body of this third-century fish flask (figure 36), which probably functioned as a perfume container, was blown without the aid of a mold. The glassmaker applied trails of purple glass to the yellow body of the fish to indicate the eyes, mouth, dorsal and side fins, and probably the tail (now missing). A gold chain is attached at the front of the side fins, and the vessel may have hung by its chain from a hook when not in use.

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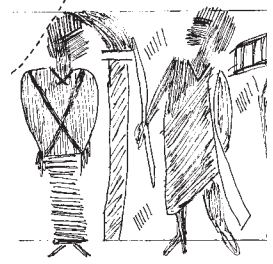
Glass with Religious Imagery

The conversion of the emperor Constantine to Christianity after A.D. 312 promoted a transformation of the religious constitution of the ancient world. By the middle of the fourth century A.D., Christianity, once a persecuted cult centered in Palestine and the urban centers of the Roman Empire, had developed into the accepted state religion. Constantine's new imperial capital at Constantinople (modern Istanbul, Turkey) grew to serve as both a seat of government and an ecclesiastical center. Increasing numbers of inhabitants of the Roman Empire followed the example of Constantine and his Christian successors to the throne and embraced the worship of Christ. The steady growth of Christian communities over the following three centuries created a large market for objects bearing religious images. The glass industry responded to this demand by manufacturing a range of vessels with decoration treating Christian themes.



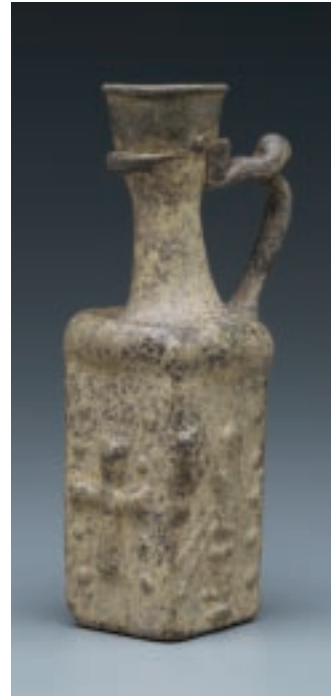
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The raising of Lazarus from the dead, a powerful example of the miraculous power of Christ, is the subject of the elaborate cut design that wraps around the surface of a glass beaker in the Yale collection (figure 37). Lazarus appears still wrapped in his burial shroud. He stands next to Jesus, who holds a staff in his left hand. The arrangement of the scene can be seen more clearly in the accompanying drawing (figure 37a). The other figures depicted on the vessel surrounding the central group of Jesus and Lazarus are probably anonymous onlookers. The glasscutter who decorated this vessel used lightly incised parallel lines to create solid areas of various shapes and sizes. The differing orientation of the striped solids demarcates the hair, faces, and clothed bodies of the figures, as well as the trees and architectural elements that form the backdrop of the scene. This type of decoration was a specialty of glasscutters working in Colonia Agrippinensis in the third and fourth centuries A.D. Although these craftsmen illustrated both pagan and Christian subjects, the raising of Lazarus was one of the most common.



37a

Although the Lazarus beaker illustrates a story taken directly from the New Testament, the bible was not the only source for decorative themes related to Christianity. This four-sided mold-blown jug (figure 38) belongs to a series of vessels bearing images of Stylite saints. The saint is represented in relief on this jug by a simplified figure, wearing a cloak with a pointed hood and standing on a column with a ladder to his left. The name of this group of saints and ascetics is derived from the Greek word for column or pillar, *στυλος* (*stylos*). The Stylites, motivated by their faith, spent large parts of their lives residing atop columns, alternating between introspective prayer and public address. The first and most famous member of the group was Saint Simeon Stylite, whose activities were centered near Antioch during the fourth and fifth centuries A.D. The later monastery complex at Qal'at Sim'an was built on the alleged site of Saint Simeon's column. Christians made pilgrimage to this site from as far away as Spain, Gaul, and Britain in order to see Saint Simeon, and a sizable cult grew up around him and his Stylite successors. This vessel almost certainly relates to this cult and may, in fact, have served as a souvenir of the pilgrimage.



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The Afterlife of Ancient Glass

The mounting threats to the Roman Empire of external attack and internal malaise exploded into full-blown crisis in the third century A.D. Repeating cycles of renewal and decline characterized the following centuries. The formal division of the eastern and western parts of the empire came on the death of the emperor Theodosius I in A.D. 395. Thereafter in the West, constant barbarian assaults on cities and towns, attractive targets due to their concentrations of wealth, brought about the near collapse of urban life. Even the city of Rome fell under the control of the Visigoths in 410. In the East, where the Roman government remained strong in its hub in Constantinople, the lives of ordinary people continued basically uninterrupted until the rise of Islam in the seventh century. The Persian sack of Jerusalem in 614 served as a potent indication of a new political reality.

Yet through all this turmoil, the production of glass vessels and objects continued, affected but not overcome by the changes sweeping across the world. The political division between East and West was mirrored by the emergence of two parallel but independent glassmaking traditions—Islamic and Frankish, respectively—which continued on their own courses of development through the medieval period.

The influence of ancient glass persists even now, as modern glassmakers attempt to match the achievements of craftsmen who lived thousands of years before, relying on many of the same techniques of manufacture and principles of design.

Epilogue: Yale Archaeology and the History of Glass

The difficulty of obtaining reliable information about the find-spots of ancient glass objects and vessels recovered outside of controlled excavations underscores the importance of the Yale University Art Gallery's collection of glass obtained through the university's participation in excavations at Dura-Europos (in modern Syria) and Gerasa (in modern Jordan).

Yale archaeologists participated in the excavations at Dura-Europos, a site located beside the Euphrates River, from 1928 to 1937. In ten seasons of digging, the excavators uncovered and examined a wealth of art and material goods, ranging from elaborate wall paintings and sculpted cult reliefs to ceramic lamps and wool textiles, a large portion of which now resides in the Yale University Art Gallery. Hundreds of pieces of glass were also unearthed, mostly dating to the second and third centuries A.D. Although much of the glass is fragmentary and, therefore, less aesthetically appealing than the more complete vessels illustrated in this volume, the controlled excavation of the site, the recording of find-spots by the archaeologists working there, and the circumscribed range of dates afforded by the history of the city, which was sacked by the Sassanians around A.D. 256, enable scholars to understand what techniques and styles were current in a certain place at a certain time.

In addition to the opulently painted and gilded fragment of the Thetis vase already discussed (see page 18), the glass excavated at Dura-Europos also included a sizable sampling of simple vessel fragments with a distinctive style of geometric cut decoration which seems to have been a Durene specialty (figure 39), as well as a large number of fragments of flat glass (figure 40) likely used to glaze the windows of buildings. The widely varied glass finds from Dura-Europos truly underscore the broad scope of the production and use of glass in the ancient world.



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Illustrations

Cover: *Detail of Jar with Sixteen Handles* (see fig. 20 below)

Frontispiece: *Detail of Ribbed Mosaic Bowl* (see fig. 8 below)

Map: Map drawn by William Nelson

Fig. 1: *Vulture head inlay*; cast and carved opaque blue, yellow, and red glass; Egyptian, ca. 1400–1350 B.C.; H. 1.9 cm. w. 3.6 cm.; Moore Collection, 1955.6.295

Fig. 2: *Egyptian princess amulet*, cast and carved opaque blue glass; Egyptian, ca. 1400–1350 B.C., H. 3 cm; University Purchase Fund, 1936.50

Fig. 3: *Diagram of the core-forming technique*; drawing after D. Grose, *Early Ancient Glass*, 31, fig. 4

Fig. 4: *Column flask*; core-formed from opaque blue glass with yellow and white thread decoration; Egyptian, ca. 1400–1200 B.C.; H. 8.5 cm.; Moore Collection, 1955.6.1

Fig. 5: *Amphoriskos*; core-formed from opaque blue glass with yellow and white thread decoration; Eastern Mediterranean, 6th–4th century B.C.; H. 10.5 cm., Anonymous Gift, 1937.178

Fig. 6a: *Diagram of casting mosaic glass vessel in two-part (closed) mold*; drawing after D. Grose, *Early Ancient Glass*, 32, fig. 6
Fig. 6b: *Diagram of casting mosaic glass vessel by sagging over former mold*; drawing after D. Grose, *Early Ancient Glass*, 33, fig. 8

Fig. 7: *Mosaic bowl*; cast from colorless glass, with yellow, purple, green, white, and blue mosaic elements; Late Hellenistic or Roman, Eastern Mediterranean, late 2nd–1st century B.C.; H. 7.8 cm., D. 14.1 cm., Moore Collection, 1955.6.20

Fig. 8: *Ribbed Mosaic Bowl*; cast from dark blue glass, with yellow and white mosaic elements; Late Hellenistic or Roman, Eastern Mediterranean or Italy, 1st century B.C.–1st century A.D.; H. 5.2 cm., D. 10.3 cm., Moore Collection, 1955.6.17

Fig. 9: *Flask*; blown from brown glass with applied white decoration; Roman, Eastern Mediterranean or Italy, 1st century A.D.; H. 24.5 cm.; Moore Collection, 1955.6.34

Fig. 10, left: *Bottle*; blown from blue glass; Roman, Eastern Mediterranean, 1st–2nd century A.D., H. 9.5 cm.; Lehman Gift, 1953.28.9

Fig. 10, right: *Oil flask (Aryballos) with bronze handle*; blown from pale green glass; Roman, Eastern Mediterranean, 1st–2nd century A.D., H. 8.1 cm., Mansfield Collection, 1930.418

Fig. 11: *Bottle with color-band decoration*; blown from brown glass with applied green and white decoration; Roman, Eastern Mediterranean, 1st century A.D.; H. 5.7 cm.; Moore Collection, 1955.6.38

Fig. 12: *Cup (Skyphos or Kantharos) with splashed decoration*; blown from dark blue glass with splashed decoration in yellow, red, and white; Roman, Italian or Eastern Mediterranean, 1st century A.D.; H. 9.8 cm., D. 9.5 cm.; Moore Collection, 1955.6.13

Fig. 13: *Lidded box (Pyxis) with geometric and plant motifs*; mold-blown from opaque white glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 8.3 cm.; Moore Collection, 1955.6.56

Fig. 14: *Lotus Beaker*; mold-blown from pale green glass, Roman, Eastern Mediterranean, 1st century A.D.; H. 11.5 cm.; Moore Collection, 1955.6.271

Fig. 15: *Facet-cut beaker*; cut from a blank blown from nearly colorless glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 9.3 cm.; Moore Collection, 1955.6.133

Fig. 16: *Bottle with cut decoration*; blown from colorless glass with cut decoration; Late Roman, Eastern Mediterranean, 4th–5th century A.D.; H. 8 cm.; Moore Collection, 1955.6.278

Fig. 17: *Fragment of the Thetis vase*; painted and gilded opaque white glass; Roman, Syrian, found at Dura-Europos, 2nd–3rd century A.D.; H. 3.3 cm., W. 4.4 cm.; Yale-French Excavations at Dura-Europos, 1931.588a

Fig. 18: *Gilded beaker with inscription*; blown from purple glass with gilded decoration; Late Roman, Syrian, or Egyptian, 3rd–4th century A.D.; H. 15 cm., D. 4.8 cm.; Moore Collection, 1955.6.205

Fig. 19: *Bottle with snake thread decoration*; blown from pale green glass with applied decoration; Roman, Eastern Mediterranean, late 2nd century A.D.; H. 15.5 cm., Moore Collection, 1955.6.132

Fig. 20: *Jar with sixteen handles*; blown from pale green glass with applied decoration; Late Roman, Eastern Mediterranean, 5th–6th century A.D.; H. 16.8 cm., Mansfield Collection, 1930.429

Fig. 21: *Four-compartment cosmetic tube*; blown from pale green glass with applied decoration; Late Roman, Eastern Mediterranean, 4th–5th century A.D.; H. 15.5 cm., Mansfield Collection, 1930.408

Fig. 22: *Square bottle*; mold-blown from pale bluish green glass; Roman, Eastern Mediterranean, 1st–2nd century A.D.; H. 22.6 cm., Mansfield Collection, 1930.412
Fig. 22a: *Square bottle*; bottom view

Fig. 23, left: *Hexagonal jug with Christian symbols*; mold-blown from dark brown glass; Early Byzantine, Palestinian, probably from Jerusalem, late 6th–7th century

A.D., H. 14.0 cm., Moore Collection, 1955.6.152

Fig. 23, center: *Hexagonal jar with Jewish symbols*; mold-blown from dark brown glass; Early Byzantine, Palestinian, probably from Jerusalem, late 6th–7th century A.D.; H. 7.9 cm.; Mansfield Collection, 1930.439

Fig. 23, right: *Hexagonal jug*; mold-blown from dark brown glass; Early Byzantine, Palestinian, probably from Jerusalem, late 6th–7th century A.D.; H. 16.5 cm.; Moore Collection, 1955.6.153

Fig. 23a: *Detail of hexagonal jug with Christian symbols*

Fig. 23b: *Detail of hexagonal jar with Jewish symbols*

Fig. 24: *Jar signed by Ennion*; mold-blown from pale bluish green glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 6.5 cm., D. 8.8 cm.; Moore Collection, 1955.6.66

Fig. 25: *Jug with basket pattern*; mold-blown from pale green glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 9.2 cm.; Moore Collection, 1955.6.55

Fig. 26: *Cup with incised lines*; blown from pale green glass with cut decoration; Roman, Western Empire, probably from Colonia Agrippinensis, 2nd century A.D.; H. 6.0 cm., D. 9.1 cm.; Leonard C. Hanna, Jr., B.A. 1913, Fund, 1992.15.1

Fig. 27: *Jug with chain handle*; blown from pale green glass with applied decoration; Roman, Western Empire, 3rd century A.D.; H. 10.1 cm., Moore Collection, 1955.6.130

Fig. 28: *Beaker with Dionysiac revel*; mold-blown from olive green glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 16.5 cm., D. 9.6 cm.; Moore Collection, 1955.6.50

Fig. 29a–b: *Ajax flask*; mold-blown from opaque white glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 8 cm.; Moore Collection, 1955.6.54

Fig. 30: *Double-headed (Janiform) flask*; mold-blown from pale brown glass; Roman, Eastern Mediterranean, 2nd century A.D., H. 8 cm.; Moore Collection, 1955.6.76

Fig. 31: *Head flask*; mold-blown from brown glass; Roman, Eastern Mediterranean, 1st century A.D., H. 10.2 cm.; Lehman Gift, 1953.28.14

Fig. 32: *Cup with inscription*; mold-blown from yellowish green glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 7.7 cm.; D. 7.3 cm., Moore Collection, 1955.6.67

Fig. 33, left: *Miniature replica of the Tyche of Antioch*; cast from bronze; Roman, Eastern Mediterranean, 1st–2nd century A.D.; H. 15.8 cm.; Leonard C. Hanna, Jr., B.A. 1913, Fund, 1986.65.1

Fig. 33, right: *Tyche flask*; mold-blown from light purple glass; Roman, Eastern Mediterranean, 2nd–3rd century A.D.; H. 15.6 cm.; Moore Collection, 1955.6.81

Fig. 34, left: *Date flask*; mold-blown from brown glass; Roman, Eastern Mediterranean, 1st century A.D., H. 7.2 cm., Moore Collection, 1955.6.64

Fig. 34, center: *Date flask*, mold-blown from brown glass, Roman, Eastern Mediterranean, 1st century A.D.; H. 7.3 cm.; Mansfield Collection, 1930.394

Fig. 34, right: *Date flask*; mold-blown from dark blue glass; Roman, Eastern Mediterranean, 1st century A.D.; H. 7.3 cm.; Moore Collection, 1955.6.65

Fig. 35: *Grape flask*; mold-blown from brown glass; Roman, Western Empire, late 1st–3rd century A.D.; H. 18.5 cm.; Moore Collection, 1955.6.78

Fig. 36: *Fish flask*; blown from yellow glass with applied purple decoration (tail missing); attached to gold chain with wheel-shaped ornament; Roman, Eastern Mediterranean, 3rd century A.D.; L. 13.5 cm; H. 5.2 cm, Moore Collection, 1955.6.178

Fig. 37: *Cup with cut decoration (Raising of Lazarus)*; blown from nearly colorless glass with cut decoration, Late Roman, Western Empire, probably from Colonia Agrippinensis, 4th century A.D., H. 11.2 cm., D. 11.8 cm., Moore Collection, 1955.6.182

Fig. 37a: *Drawn detail of the Raising of Lazarus scene*; drawing by S. Matheson, *Ancient Glass in the Yale University Art Gallery*, 97

Fig. 38: *Jug with stylite saint*; mold-blown from light green glass with applied dark green decoration; Early Byzantine, probably Syrian, 5th–7th century A.D.; H. 14.2 cm., Moore Collection, 1955.6.149

Fig. 39: *Fragment of a vessel with cut decoration*; blown from colorless glass with cut decoration; Roman, Syrian, found at Dura-Europos, 2nd–3rd century A.D.; H. 6.5 cm., W. 7 cm.; Yale-French Excavations at Dura-Europos, 1933.574d

Fig. 40: *Fragment of a Window Pane*; Probably blown from pale green glass and flattened; Roman, Syrian, found at Dura-Europos, 2nd–3rd century A.D.; H. 14.9 cm., W. 7 cm.; Yale-French Excavations at Dura-Europos, 1938.5999.2616

Suggested Reading

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Christoph W. Clairmont, *The Glass Vessels, The Excavations at Dura-Europos, Final Report IV, Part II* (New Haven, 1963).

Stuart J. Fleming, *Roman Glass: Reflections on Cultural Change* (Philadelphia, 1999).

David F. Grose, *Early Ancient Glass*, The Toledo Museum of Art (New York, 1989).

Donald B. Harden, *Glass of the Caesars* (Milan, 1987).

Dan Klein and Ward Lloyd, eds., *The History of Glass* (London, 1984).

Susan B. Matheson, *Ancient Glass in the Yale University Art Gallery* (New Haven, 1980).

E. Marianne Stern, *Roman Mold-Blown Glass*, The Toledo Museum of Art (Rome, 1995).

Important Collections of Ancient Glass

The British Museum, London, England

The Corning Museum of Glass, Corning, New York

The Eretz Israel Museum, Tel Aviv, Israel

The Israel Museum, Jerusalem, Israel

The Los Angeles County Museum, Los Angeles, California

The Metropolitan Museum of Art, New York, New York

Musée du Louvre, Paris, France

Museo Archeologico Nazionale di Napoli, Naples, Italy

The Newark Museum, Newark, New Jersey

Römisch-Germanisches Museum, Cologne, Germany

The Royal Ontario Museum, Ontario, Canada

The Toledo Museum of Art, Toledo, Ohio

font: Bulmer: this font is a revival of a typeface originally
designed by William Martin in 1790 for Shakespeare Press

designer: Sonia L. Shannon

editor: Joyce Ippolito

printer: Thames Printing, Inc.

photographer: Alex Contreras

